

The role of cognitive distortions in
Pathological Gambling: a
theoretical review

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Extended Summary

The gambling disorder is a "persistent and recurring problem behavior of gambling, which leads to clinically significant impairment or distress" (American Psychiatric Association, 2013, p.585). Cognitive distortions are the wrong beliefs about the results of gambling and the probability of having influence on them (Ciccarelli, Griffiths, Nigro & Cosenza, 2017).

Gamblers tend to erroneously attribute cause and effect relationships with unrelated events, and believe that they can influence the results of gambling (Ciccarelli, Griffiths, Nigro & Cosenza, 2017). Several studies have shown that cognitive distortions are significantly present in the gambling disorder, and hence the great importance of their study.

The general objective of this study is to know the role of distortions and cognitive patterns linked to pathological gambling, through a theoretical review. The final pretensions are to exhaustively identify these cognitive aspects in gambling and to develop a psychological intervention for the cognitive aspects approach in pathological gambling.

Considering the classification of Montero and León (2002), this is a theoretical review study.

To obtain the necessary information, we have consulted the "Scopus" bibliographic database, which has various research resources, and references cited from more than 15,000 periodicals from 4,000 international editors. A single search was launched, and different descriptors were used to achieve a wide range of information of the chosen topic.

The exclusion criteria were: under 18 years, articles in languages different from English or Spanish, those works that do not answer the research question (those that despite focusing on pathological gambling and cognitive distortions focus on neurological substrates or the comorbidity with other pathologies), and not being able to access the full article.

Next, the keywords were chosen according to the previous scientific literature. These are: pathological gambling, gambling disorder, ludopathy, gambling addiction and problem gambling, and on the other hand: cognitive distortions, cognitive patterns, cognitive disorders, distorted thoughts, and cognitive mistakes. The review was ranged from 2013 to 2018. A total of 187 articles were obtained. According with the exclusion criteria, 152 were excluded and finally 35 were used for the present study.

Regarding the procedure performed, a reviewer (S. S., P.) conducted the search and analyzed the initial studies, attending to the abstract first, and afterwards to the full article. When in doubt, she contacted a second reviewer (B. L., J. M.).

In pathological gambling it is very important to treat the subtype of gamblers. It is shown in the studies that indicate that cognitive flexibility is affected in pathological gamblers (PG), as opposed to the inhibition affected in the case of problematic and non-pathological gamblers, (Chamberlain et al., 2017). Also, the perception of inability to stop the game, compared to the interpretative bias present in problematic and non-pathological gamblers (Barrault & Varescon, 2013), measured through the Gambling Related Cognitions Scale (GRCS). These results have direct implications with the treatment.

In addition, Randomized Controlled Trials (RCT) conducted with a group of pathological gamblers and another group of healthy gamblers show that PGs have a worse performance in the task Iowa Gambling Task (IGT) and have higher scores in GRCS (Ciccarelli et al., 2017), and they also wrongly estimate that their performance is much better than really it is (Brevers et al., 2014).

Some more prominent bias found in PG are: **gambler's fallacy** ("belief in the negative correlation in a series of independent outcomes" (Fong, So & Law, 2016, taken from Sundali & Croson, 2006)), **overconfidence** ("express a degree of confidence in their knowledge or ability that is not warranted by objective reality" (Fortune & Goodie, 2012)), **illusory correlation** ("they believe that events they expected to be correlated, due to previous experience or perceptions, actually have been correlated in recent experience, even when they were not" (Fortune & Goodie,

2012)), **illusion of control** (“an expectancy of a personal success probability inappropriately higher than the objective probability should warrant” (Goodie & Fortune, 2013, taken from Langer, 1975)), **hot hand** (“gamblers believe that they are experiencing a run of good luck and winning will persist in the subsequent games” (Fong, So & Law, 2016)), **hindsight bias** (“a win, from a gambler's perspective, means his/her decision was correct, and thus his/her confidence in gambling increases. Given a loss, a gambler may review his/her gambling experience and conclude that she/he has wagered on the winning number” (Fong, So & Law, 2016)), **break-streak pattern** (“is characterized by an outcome pattern in which a black outcome is preceded by a streak of red outcomes” (Fong, So & Law, 2016)), **self-serving bias** (“tendency to attribute wins to skill or other internal causes and losses to external causes” (Goodie & Fortune, 2013)), **impaired control** (“is a gambler's belief that he or she cannot control his or her own problematic gambling behaviors” (Goodie & Fortune, 2013)) and **attentional bias** (“may contribute to the relapse of pathological gamblers in three interrelated ways. First, continued engagement in gambling activities among pathological gamblers could be because of an enhanced likelihood to detect gambling-related cues in the environment, which may trigger relapse through conditioned responses. Second, once a gambling-related cue is detected, it may be automatically processed, making it difficult to deviate attention away from it, which may also increase the risk of relapse. Third, because attentional capacity is a limited resource, directing attention to one stimulus suppresses the processing of competing cues, leaving no attentional resources for alternative cues” (Verdura et al., 2013)).

As for the treatment, several studies agree that CBT is very effective in improving cognitions related to gambling (Casey et al., 2017; Rash & Petry, 2014) and reduce these behaviors (Echeburua, Salaberría & Cruz-Saez, 2014; McIntosh, Crino & O'Neill, 2016). Anyway, it is very important to use more personalized treatments focused on the different subtypes of gamblers and the type of cognitive distortions.

In conclusion, pathological gamblers have cognitive dysfunction in several domains (Blum, Leppink & Grant, 2017), and several studies have identified cognitive distortions (Goodie & Fortune, 2013) as one of the most critical factors associated with the gambling problem.

References

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